final blend. A host of dispersing agents are readily available commercially and particularly efficacious dispersing agents are usually recommended by the manufacturers of the aqueous synthetic resin latex. These materials are widely used in latex paint formulations and are useful in the present invention to keep the latex resin well dispersed in the final blend. The dispersing agent, while not essential, is preferred to assist in dispersing the latex. The amount of dispersing agent will generally depend upon the amount of latex used and will generally be substantially the same amount as is used in latex paint formulations.

The blend preferably includes a pigment, such as titanium dioxide power, and it is a feature of the invention that various colors can be imparted to the coating in much the same way the latex paint formulations may be pigmented. The nature and amount of the pigments used can vary widely and the materials and quantities used may be generally the same as in conventional latex paint formulations. Conventional fillers, such as calcium carbonate may also be employed as in conventional latex paint formulations. Conventional dispersing agents may also be employed to facilitate dispersion of the pigment and/or filler. For example, potassium tripolyphosphate may be used as a dispersing agent for TiO_2 pigment.

Anti-freeze is another optional ingredient. Ethylene glycol is preferred since it also exerts a plasticizing effect on the resin employed in the coating. The amount of anti-freeze, if utilized, is dependent upon the amount of the free water present and is preferably present in an amount sufficient to prevent freezing of the final blend at ambient temperature. In the case of ethylene glycol, an amount of from 5 to 50% by weight of the free water present is sufficient.

Conventional defoamers, such as Nopco NXZ, are preferably employed since foam in the final blend is not desirable. Defoaming agents suitable for latex paint formulations are widely known and may be employed in amounts normally used in such paints. Various biocidal agents may be added to the formulation to prevent attack by fungus, insects, and the like. For example, the insecticide 2-N-octyl-4-isothiazolin-3-one may be incorporated in an effective amount. A carrier for the insecticide, such as zinc oxide, may be added to the blend to serve as a support for the biocidal agent in the coating.

The pH of the final blend should be such as to prevent coagulation of the latex resin. Ammonia or other pH adjusting agents may be added for this purpose as is conventionally done in the formulation of latex paints.

Various conventional plasticizers for the resin may also be added. Plasticizers conventionally used in latex resin paint formulations may be employed in their conventional amount. Particular commercially available plasticizers are known to be particularly efficacious for particular commercially available latex resins in the latex paint field and such plasticizers are useful in the present invention.

Water is added, if needed, for purposes of blending the various ingredients such as pigments, fillers, and other solid materials, if present. Water is, of course, also present in the aqueous resin latex and may be present in other ingredients (such as a 3% aqueous solution of thickening agent).

The coating formulation is made up by blending the foamed polystyrene particles with the aqueous synthetic resin latex in any convenient blending device such as a paddle mixer. The various optional ingredients are preferably blended with the aqueous latex prior to blending with the polystyrene particles. Where a pigment is employed, it is preferably separately blended in an aqueous vehicle which would preferably include a pigment dispersing agent. Fillers, such as calcium carbonate, and other solid materials, are also preferably blended into the aqueous pigment system prior to blending with the aqueous resin latex. Blending of the pigment and other solid components is preferably accomplished in equipment conventionally employed in formulation of paint in which the pigment or other solid particles are ground to an appropriate size for dispersion in the aqueous vehicle.

The final coating composition is applied to a roof or other surface in a suitable thickness of, generally, about 30 mils to one inch. Preferably, the thickness for a roof is about 200 to 300 mils. The dried thickness of the coating is substantially the same because of the small volumetric content of water. As mentioned above, where thicker coatings are desired, two coating formulations may be applied in two layers. The bottom layer, which can be of any desired thickness, generally up to about one inch, has a low content of latex resin. The top layer, having a thickness of 100 to 300 mils, has higher content of the resin.

Another useful latex emulsion is sold under the Trademark Rhoplex LC67 and is available from Rohm and Haas. It is a thermoplastic acrylic emulsion containing 65% solids. It is described in the manufacturer's brochure RC-A-20 dated February, 1976.

What is claimed is:

1. A method of providing a weatherproof coating on an exterior surface which comprises providing an aqueous coating composition comprising an aqueous thermoplastic synthetic resin latex prepared by emulsion polymerization and capable of forming a film, and dispersed therewith, a plurality of discrete multicellular particles of foamed polystyrene, said particles having a particle size of 0.03 to 0.3 inch and a thickening agent, the resin latex being present in an amount of 2–60 parts by volume of resin solids per 100 parts by volume of polystyrene particles, and said thickening agent being present in an amount sufficient to increase the viscosity of the aqueous coating composition to a paint-like consistency, applying the aqueous composition onto said exterior surface, and permitting water to evaporate from the coating whereby there is formed a tenaciously adherent, weatherproof, lightweight, heat insulating coating on said exterior surface, said coating having a thickness of about 30 mils to one inch comprising said polystyrene particles and from 2–60 parts by volume of said latex resin per 100 parts by volume of said polystyrene particles.

2. A method according to claim **1** wherein the composition is applied a plurality of times.

3. A method according to claim **2** wherein a first application of said composition has a relatively low content of resin latex and a subsequent application thereof has a relatively high content of resin latex.

4. A method according to claim **1** wherein said exterior surface comprises an exterior surface of a roof.

5. A method according to claim **1** wherein said aqueous composition is thixotropic.

6. A method according to claim **1** wherein said thickening agent is selected from the group consisting of starch, gel, gum and hydroxyethyl cellulose.

7. A method according to claim **1** wherein said aqueous composition further comprises at least one member